

## AMENDMENTS TO THE CLAIMS

Replace the claims with the following rewritten listing:

1. (Currently Amended) A repeater, comprising: wherein a cell identifier generator module ~~is added to~~ in a downlink circuit structure of said repeater, wherein said cell identifier generator module ~~comprising~~:

a synchronization searching unit for searching for a ~~synchronization signal of~~  
a base station pilot signal;

a time delay unit for generating a fixed delay according to the searching  
result from the synchronization searching unit; and

~~between a frame start time of a cell identifier signal and a frame start time of~~  
~~a base station pilot signal, and~~ a cell identifier signal generating unit for generating a  
cell identifier signal ~~code word~~;

wherein said time delay unit generating the fixed delay ~~delay between a~~  
frame start time of the base station pilot signal and a frame start time of the cell  
identifier signal is the fixed delay ~~according to the searching result of the~~  
~~synchronization searching unit.~~

2. (Currently Amended) ~~A~~ The repeater according to claim 1, wherein: an  
input end of said cell identifier generator module is connected to a low-noise amplifier  
module of the repeater, and an output end of said cell identifier generator module is  
connected to a power amplifier module of the repeater via a coupler.

3. (Currently Amended) ~~A~~ The repeater according to claim 2, wherein said cell  
identifier generator module also comprises: a down-conversion unit, an A/D (Analog to  
Digital) conversion unit, a D/A (Digital to Analog) conversion unit, ~~an~~ an up-conversion  
unit, and a filtering unit;

wherein said down-conversion unit is designed to carry out frequency conversion

from RF to intermediate frequency for received signals; said A/D conversion unit is designed to carry out sampling and quantification for the intermediate frequency signals; said D/A conversion unit is designed to carry out D/A conversion to obtain a base-band form of the cell identifier signal; said up-conversion unit is designed to carry out conversion from base-band to RF for the cell identifier signal; said filtering unit is designed to carry out band restriction for the cell identifier signal to control frequency leakage to adjacent frequency; said cell identifier signal is coupled to an input end of the power amplifier in the downlink circuit structure of the repeater via said D/A unit, said up-conversion unit, and said filtering unit.

4. (Currently Amended) A method for positioning a mobile station using the repeater according to claim 1, comprising:

(1) ~~Issuing~~ issuing a cell identifier signal ~~code word~~, a fixed delay, and a search window width ~~from the repeater for the mobile station according to in response to a positioning request offrom the mobile station, wherein the cell identifier signal is searched in a time range defined by the search window width and the fixed delay;~~

(2) ~~The~~ the mobile station utilizing a TDOA (Time Difference Of Arrival) ~~measuring function to measure~~ measuring a Time Difference Of Arrival (TDOAs) between the a-cell identifier signal and a base station pilot signal and reporting the measured data TDOA;

(3) ~~Determining~~ determining whether ~~there is a time difference consistent to a fixed delay between the cell identifier signal and the base station pilot signal according to the reported data from the mobile station~~ the value of TDOA equals to the fixed delay; if so, going to step (4); otherwise going to step (7);

(4) ~~Reading calibrated value~~  $TOA_e$  of TOA (Time Of Arrival) ~~between a repeater and the base station, and initiating an RTT (Round Trip Time) measuring function of the base station to measure RTT of the mobile station, wherein~~  $TOA_e = (1/2) RTT$ ;

(5) ~~Converting the measured RTT reported from the base station into measured~~

value  $TOA_m$  of TOA, wherein  $TOA_m = (1/2) \text{ RTT}$ , which is the measuring a Time Of Arrival (TOA),  $TOA_m$ , from the mobile station to the base station viathrough the repeater;

(5) ~~subtracting the calibrated value  $TOA_c$  of TOA from the repeater to the base station from  $TOA_m$  and taking the result as TOA  $TOA_{trans}$  from the mobile station to the repeater, wherein determining a value of  $TOA_{trans}$  with the formula:  $TOA_{trans} = TOA_m - TOA_c$ , wherein the  $TOA_{trans}$  means TOA from the mobile station to the repeater, and the  $TOA_c$  means a calibrated TOA from the repeater to the base station;~~

(6) ~~Calculating~~ calculating the distance between the mobile station and the repeater through multiplying  $TOA_{trans}$  with light velocity; and

(7) ~~Determining~~ determining the position of the mobile station with the mobile station positioning method.

5. (Currently Amended) A The method for positioning a mobile station according to claim 4, wherein said cell identifier signal is a scrambling code of the base station, which is different from that of adjacent base stations.

6. (Currently Amended) A The method for positioning a mobile station according to claim 4, wherein in the step (7), said mobile station is positioning method in step (7) is via TDOA positioning method.

7. (Currently Amended) A The method for positioning a mobile station according to claim 4, wherein in the step (7), said mobile station is positioning method in step (7) is via TOA positioning method.